

ABSTRACT OF THE DISCLOSURE

An ohmic contact of semiconductor and its manufacturing method are disclosed. The present invention provides a low resistivity ohmic contact so as to improve the performance and reliability of the semiconductor device. This ohmic contact is formed by first coating a transition metal and a noble metal on a semiconductor material; then heat-treating the transition metal and the noble metal in an oxidizing environment to oxidize the transition metal. In other words, this ohmic contact primarily includes a transition metal oxide and a noble metal. The oxide in the film can be a single oxide, or a mixture of various oxides, or a solid solution of various oxides. The metal of the film can be a single metal, or various metals or an alloy thereof. The structure of the film can be a mixture or a laminate or multilayered including oxide and metal. The layer structure includes at least one oxide layer and one metal layer, in which at least one oxide layer is contacting to semiconductor.